

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 25, 2022
Hours: 18:00 Hours

Date: 17-Nov-22 **Time:** 18:39:09hrs **Load(MW):** 616.55

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	164.91	
		Unit- III	98.37	400kV THP - Siliguri Line- IV	158.09	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	88.11	400kV Malbase - Siliguri Line	-79.25	
		Unit- VI	139.79	-	-	
		Total	326.27	Auxiliary Consumption & Transformation Losses at Generator end	1.00%	
2	720MW MHP	Unit-I	119.76	400kV MHP - Jigmeling Line - I	0.00	Unit-III & IV under shutdown. 400kV MHP-JLG Line I, II & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line I (Interim) on Standby.
		Unit-II	119.81	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	148.20	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	90.08	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	114.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	10.90	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	19.03	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	10.30	
		-	-	80MVA, 220/132kV ICT - II (HV)	10.50	
		-	-	220kV Tsirang - Jigmeling Line	-32.46	
-	-	132kV Gelephu - Salakati Line	0.31			
Total	239.57	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-6.16	Unit-I under Shutdown. Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-5.93	
		Unit- III	82.41	220kV CHP - Malbase Line- III	52.25	
		Unit- IV	66.48	220kV CHP - Semtokha Line- IV	77.24	
		-	-	220kV Malbase - Birpara Line	-49.81	
		-	-	66kV CHP - Chumdo Line	23.47	
		-	-	66kV CHP - Gedu Line	6.14	
		-	-	3x3MVA, 66/11kV TFR	1.70	
Total	148.89	Auxiliary Consumption & Transformation Losses at Generator end	0.12%			
4	24MW BHP (U/S)	Unit- I	5.10	220kV BHP - Semtokha Line	68.80	
		Unit- II	5.20	66kV BHP - Lobeyasa Line	28.14	
		Total	10.30	220kV BHP - Tsirang Line	-64.63	
5	40MW BHP (L/S)	Unit- I	11.00	5MVA, 66/11kV TFR	0.76	
		Unit- II	11.10	30MVA ICT, 220/66kV (HV)	18.44	
		Total	22.10	Auxiliary Consumption & Transformation Losses at Generator end	-2.07%	
6	126MW DHP	Unit-I	38.29	220kV DHP - Tsirang Line	38.06	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.00	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	38.29	Auxiliary Consumption & Transformation Losses at Gen. end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhon Line	9.81	Unit- I under Shutdown. Unit- II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	17.48	
		Unit- III	14.00	5MVA, 132/11kV TFR	0.70	
		Unit- IV	14.00	132kV Motanga - Rangia Line	0.10	
		Total	28.00	Auxiliary Consumption & Transformation Losses at Generator end	0.04%	

Note: Generation-Load Summary (MW) for November 25, 2022 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	545.85	396.46	393.65	181.85	2.81
2	Eastern Grid	267.57	204.77	203.47	30.34	1.30
Total		813.42	601.23	597.12	212.19	4.11

Note: Generation-Load Summary for November 25, 2021 at 18:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	659.30	329.10	324.96	336.21	4.13
2	Eastern Grid	246.83	93.36	91.52	147.46	1.84
Total		906.13	422.46	416.48	483.67	5.97

1. The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:

- i) Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
- ii) The clocks of all the locations are not synchronized.

2. This report is generated to give an idea of the generation & load flow for the system at a particular instant.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: November 26, 2022
Hours: 09:00 Hours

Date	Time	Load(MW)
17-Nov-22	18:39:09hrs	616.55

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	0.00	400kV THP - Siliguri Line - I	0.00	Unit-I & II under Shutdown. Unit-IV on Standby. 400kV Tala-Malbase line under Shutdown. 400kV THP - Siliguri Line- I on Standby.
		Unit- II	0.00	400kV THP - Siliguri Line - II	139.17	
		Unit- III	78.41	400kV THP - Siliguri Line- IV	134.53	
		Unit- IV	0.00	400kV THP - Malbase Line - III	0.00	
		Unit- V	88.22	400kV Malbase - Siliguri Line	-71.46	
		Unit- VI	110.03	-	-	
		Total	276.66	Auxiliary Consumption & Transformation Losses at Generator end	1.07%	
2	720MW MHP	Unit-I	90.16	400kV MHP - Jigmeling Line - I	101.20	Unit-III & IV under shutdown. 400kV MHP-JLG Line II, III & IV on Standby. 132kV MHP_Yurmoo line I not in service. 400kV JLG_ALI Direct line II Standby. 400kV JLG_ALI Line I (Interim) on Standby.
		Unit-II	90.16	400kV MHP - Jigmeling Line - II	0.00	
		Unit-III	0.00	400kV MHP - Jigmeling Line - III	0.00	
		Unit-IV	0.00	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	78.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	95.70	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	1.45	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	2.65	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	8.40	
		-	-	80MVA, 220/132kV ICT - II (HV)	8.60	
		-	-	220kV Tsirang - Jigmeling Line	18.11	
-	-	132kV Gelephu - Salakati Line	-1.11			
Total	180.32	Auxiliary Consumption & Transformation Losses at Generator end	0.62%			
3	336MW CHP	Unit- I	0.00	220kV CHP - Birpara Line- I	-6.19	Unit-I under shutdown. Unit-II on Standby.
		Unit- II	0.00	220kV CHP - Birpara Line- II	-6.36	
		Unit- III	74.90	220kV CHP - Malbase Line- III	52.51	
		Unit- IV	63.66	220kV CHP - Semtokha Line- IV	70.09	
		-	-	220kV Malbase - Birpara Line	-51.08	
		-	-	66kV CHP - Chumdo Line	19.14	
		-	-	66kV CHP - Gedu Line	7.38	
		-	-	3x3MVA, 66/11kV TFR	1.30	
Total	138.56	Auxiliary Consumption & Transformation Losses at Generator end	0.50%			
4	24MW BHP (U/S)	Unit- I	5.21	220kV BHP - Semtokha Line	58.47	
		Unit- II	5.21	66kV BHP - Lobeyasa Line	24.83	
		Total	10.42	220kV BHP - Tsirang Line	-50.96	
5	40MW BHP (L/S)	Unit- I	11.82	5MVA, 66/11kV TFR	0.60	
		Unit- II	11.03	30MVA ICT, 220/66kV (HV)	15.00	
		Total	22.85	Auxiliary Consumption & Transformation Losses at Generator end	0.99%	
6	126MW DHP	Unit-I	38.29	220kV DHP - Tsirang Line	38.06	Unit-II on Standby. 220kV DHP_Dagapela Line on Standby.
		Unit-II	0.00	220kV DHP - Dagapela Line	0.00	
		-	-	220kV Jigmeling - Dagapela Line	61.90	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	38.29	Auxiliary Consumption & Transformation Losses at Generator end	0.08%			
7	60MW KHP	Unit- I	0.00	132kV KHP - Nangkhor Line	14.18	Unit I under Shutdown. Unit-II on standby.
		Unit-II	0.00	132kV KHP - Kilikhar Line	13.69	
		Unit- III	14.13	5MVA, 132/11kV TFR	0.40	
		Unit- IV	14.29	132kV Motanga - Rangia Line	-2.41	
		Total	28.42	Auxiliary Consumption & Transformation Losses at Generator end	0.53%	

Note: Generation-Load Summary (MW) for November 26, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	486.78	330.06	326.05	138.61	4.01
2	Eastern Grid	208.74	226.27	225.00	0.58	1.27
Total		695.52	556.33	551.05	139.19	5.28

Note: Generation-Load Summary for November 26, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	666.90	336.36	331.75	329.25	4.60
2	Eastern Grid	244.74	72.98	71.32	173.06	1.66
Total		911.64	409.34	403.08	502.30	6.26

1. The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:

- i) Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
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